

C<sup>1</sup> Cont.  
Serial No. 07/971,160, filed November 5, 1992, now U.S. Patent No. 5,474,896, which is a continuation-in-part of application Serial No. 07/879,689, filed May 5, 1992, abandoned, all of which are incorporated herein by reference.

**IN THE CLAIMS:**

✓ Please cancel claims 27-37 and add the following new claims:

38. (New) A method for *in vivo* site directed genetic recombination in an organism comprising:

(a) providing a transgenic cell having at least one HO endonuclease recognition site inserted at a unique location in a chromosome;

(b) providing an expression vector that expresses said endonuclease in said transgenic cell;

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(c) providing a plasmid comprising a gene of interest and a DNA sequence homologous to the sequence of the chromosome, allowing homologous recombination;

(d) transfecting said transgenic cell with said plasmid of step (c);

(e) expressing said endonuclease from said expression vector in said cell; and

(f) cleaving said HO endonuclease recognition site with said endonuclease, whereby said cleavage promotes the insertion of said gene of interest into said chromosome of said organism at a specific site by homologous recombination.

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39. (New) The method of claim 38, wherein said endonuclease recognition site has been introduced into said cell by homologous recombination.